

REMARKS

The Official Action dated January 29, 2008 has been carefully considered. Accordingly, the present Amendment is believed sufficient to place the present application in condition for allowance. Reconsideration is respectfully requested.

By the present amendment, claim 3 is amended to recite the melt viscosity (MV1) of the polyl(arylene sulfide) in accordance with the teachings of the specification at paragraph [0066]. Independent claim 5 has been amended to clarify that hydrogen sulfide formed upon the dehydration is discharged as a gas to the exterior of the system, as described in the present specification at paragraphs [0045]-[0046], and to recite the mols of (i)-(iii) to mol of sulfur source as 1.015 to 1.075, as previously set forth in claim 9. Further, claim 5 is amended to include limitations from claims 3 and 14-16. Claims 8-9 and 14-16 are cancelled, whereby claims 3-7 and 10-13 are pending in this application. It is believed that these changes are fully supported by the original specification, whereby entry of the present Amendment is warranted and respectfully requested.

Claims 3-5, 7 and 10-16 were rejected under 35 U.S.C. 102(b) as being unpatentable over Sato et al, JP 2000-191785, while claims 6, 8 and 9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. The Examiner asserted that Sato et al teach that sodium sulfide can be produced by in situ reaction of sodium hydrosulfide and sodium hydroxide in paragraph [0018] and that these reactants can be used in equimolar amounts in paragraph [0026]. The Examiner further asserted that if such a step is employed in application example 1 of Sato et al, the resulting ratio of NaOH to S is (23.873/22.04) or 1.083, whereby Sato et al anticipate the process of claim 5 and render obvious the molar ranges of claims 8 and 9. Finally, the Examiner

asserted the poly(arylene sulfide)s (PASs) of claims 3 and 4 are inherently produced by Sato et al.

These rejections are traversed and reconsideration is respectfully requested. More particularly, the process for producing a PAS according to the present invention and as defined in claim 5 comprises four important process steps which, in combination, provide a PAS having a desirable combination of improved properties as set forth in both claims 3 and 5. Specifically, in the dehydration step (1), an alkali metal hydrosulfide and an alkali metal hydroxide are heated and reacted in a proportion of 0.95 to 1.05 mol of alkali metal hydroxide per mol of the alkali metal hydrosulfide, wherein distillate containing water is discharged to the exterior of the system and hydrogen sulfide formed upon the dehydration is discharged as a gas to the exterior of the system. In the subsequent charging step (2), the total number of mols of (i) alkali metal hydroxide formed with hydrogen sulfide formed upon the dehydration, (ii) the alkali metal hydroxide added prior to the dehydration, and (iii) the alkali metal hydroxide added after the dehydration is 1.015 to 1.075 mols per mol of the charged sulfur source and the mols of water are controlled to provide 0.5 to 2.0 mols of water per mol of the charged sulfur source. Additionally, the polymerization is conducted in the defined first-stage polymerization step (3) and the defined second-stage polymerization step (iv).

The importance of the combination of the defined steps (i)-(iv) in providing a PAS polymer product in high yield and having good melt viscosity, low yellowness index, low dimer byproduct, good reactivity with aminosilane coupling agents and low volatility is demonstrated by the Examples and Comparative Examples set forth in the present specification, the conditions and results of which are summarized in Tables 1 and 2 at pages 38 and 39 of the present specification. More particularly, as shown in Comparative Example 1 of the present

specification, when the molar ratio of alkali metal hydroxide to alkali metal hydrosulfide (NaOH/NaSH) in the dehydration step (1) and the molar ratio of alkali metal hydroxide (i)-(iii) to sulfur source (NaOH/available S) in the charging step (2) are both lower than the ranges of claim 5, decomposition occurs in the polymerization step.

As shown in Comparative Example 2, when the molar ratio of NaOH/NaSH in the dehydration step (1) is lower than that required by claim 5, the reactivity of the resultant PAS to aminosilane becomes undesirably poor and generation of volatile components is undesirably increased, even when the molar ratio of NaOH/available S (sulfur source) in the charging step (2) is controlled to 1.00, i.e., an equimolar amount.

As shown in Comparative Example 3, when the molar ratio of NaOH/available S in the charging step (2) is 1.10, thereby exceeding the upper limit value of 1.075 as defined by claim 5, the amount of a secondarily produced dimer (i.e., bis(4-chlorophenyl) sulfide) increases, and the generation of a volatile component is also increased, even when the molar ratio of NaOH/NaSH in the dehydration step (1) is controlled to 1.04.

Finally, as shown in Comparative Examples 4 and 5, when a combination of a first-stage polymerization step and a second-stage polymerization step as defined by claim 5 of the present application is not employed, the yellow index (YI value) undesirably increases, the amount of bis(4-chlorophenyl) sulfide undesirably increases, the reactivity to aminosilane undesirably decreases, and the rank of volatile component increases, even when the molar ratio of NaOH/NaSH in the dehydration step (1) and the molar ratio of NaOH/available S in the charging step (2) are controlled within the respective ranges defined by claim 5.

On the other hand, Examples 1-3 demonstrate that when the production process employs the various defined conditions of steps (1)-(4) of claim 5, an alkali metal hydrosulfide and an

alkali metal hydroxide can be used as materials for a sulfur source to stably conduct a polymerization reaction, whereby a PAS having a good melt viscosity, i.e., of 30 to 500 Pa·s as measured at the indicated conditions, and an extremely low, i.e., lower than 50 ppm, content of bis(4-chlorophenyl) sulfide dimer is produced. Further, the PAS is excellent in reactivity to silane coupling agents such as γ -aminopropyltriethoxysilane (i.e., aminosilane), indicated by the increase in melt viscosity, i.e., the MV2/MV1 exceeding 2.0, and is low in volatile matter and good in color tone as demonstrated by a yellow index of at most 10.

Sato et al provide no teaching of the improved combination of properties provided to PAS as required in claims 3 and 5 or of the claimed combination of steps of claim 5 resulting in such a combination of properties. More particularly, the PAS of claims 3 and 5 has a melt viscosity (MV1) of 30 to 500 Pa·s as measured at a temperature of 310°C and a shear rate of $1,216 \text{ sec}^{-1}$. On the other hand, while Sato et al employ conditions for measuring melt viscosity comparable to those presently claimed (a temperature of 310°C and a shear rate of $1,200 \text{ sec}^{-1}$ according to Sato et al versus a temperature of 310°C and a shear rate of $1,216 \text{ sec}^{-1}$ according to claims 3 and 5), Sato et al disclose their polymerization process results in a polymer having a lower melt viscosity:

“The resultant PAS is a high-molecular weight or relatively high-molecular weight polymer, and the melt viscosity (as measured at a temperature of 310°C and a shear rate of $1,200 \text{ sec}^{-1}$) thereof is generally 3 Pa·s or higher, preferably 5 Pa·s or higher, more preferably 10 Pa·s or higher.” (JP 2000-191785A, paragraph [0050]).

The melt viscosity of the exemplified polymers in Examples 1-3 of Sato et al are 16 Pa·s (paragraph [0058]), 23 Pa·s (paragraph [0063]), and 15 Pa·s [paragraph 0069]). Sato et al teach that to obtain a higher melt viscosity, for example, as presently claimed, a further heat treatment,

subsequent to polymerization, must be performed (see paragraph [0051]) or that a dehydration step after the second-stage polymerization step is omitted and the high temperature reaction conditions are maintained for an extended period of time (12 hours) after polymerization is completed, also resulting in increased sodium content (see paragraph [0070]). Sato et al's Example 4 demonstrates this latter method wherein the production process was conducted in exactly the same manner as in Example 1 except that the temperature of the reactor was kept for 12 hours at 260°C without conducting dehydration after completion of the second-stage polymerization in Example 1 (paragraph [0070]). Sato et al also exemplify the subsequent heat treatment of the polymer products of Examples 1-3 to obtain higher melt viscosities. However, Sato et al fail to provide a two-step polymerization method as presently claimed providing a PAS with a melt viscosity of 30 to 500 Pa·s as measured at a temperature of 310°C and a shear rate of $1,216 \text{ sec}^{-1}$ as required by claims 3 and 5. Rather, Sato et al require other processes for obtaining the presently claimed melt viscosities.

Additionally, and importantly, Sato et al do not teach a process as recited in claim 5, and therefore Sato et al do not provide any basis for assuming that the PAS properties recited in claims 3 and 5 are inherent in the product of Sato et al. First, in the production process exemplified by Sato et al, alkali metal sulfide is used as a sulfur source. Although Sato et al further state that the alkali metal sulfide can be prepared from hydrogen sulfide or an alkali metal hydrosulfide and an alkali metal hydroxide *in situ* in almost equimolar amounts in an organic amide solvent (paragraphs [0018] and [0026]), Sato et al do not exemplify any process

combining use of the alkali metal hydrosulfide and the alkali metal hydroxide as the sulfur source, particularly in combination with steps (2)-(4) as claimed.¹

A prior art disclosure of a generic invention encompassing a vast number of embodiments does not by itself anticipate a more specifically claimed invention within the meaning of 35 U.S.C. §102; rather, such a prior art reference must further provide a more specific, limited teaching relating to the claimed invention in order to anticipate the same. *In re Petering*, 133 U.S.P.Q. 275 (C.C.P.A. 1962); *In re Ruschig*, 145 U.S.P.Q. 274 (C.C.P.A. 1965); *In re Arkley*, 172 U.S.P.Q. 524 (C.C.P.A. 1972). Accordingly, in view of the failure of Sato et al to exemplify a process combining use of the alkali metal hydrosulfide and the alkali metal hydroxide as the sulfur source, particularly in combination with steps (2)-(4) as claimed, Sato et al do not anticipate the process of claim 5 under 35 U.S.C. §102 and do not provide any basis for asserting that the PASs of claims 3 and 4 are inherent in the process of Sato et al.

Second, the Examiner asserted that if Sato et al prepare their alkali metal sulfide from equimolar amounts of an alkali metal hydrosulfide and an alkali metal hydroxide *in situ*, “the mol ratio of NaOH in the reactor/available S is 1.083.” However, this ratio falls outside the range of 1.015-1.075 required by claim 5. Anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference. *In re Robertson*, 169 F.3d 743, 745, 49 U.S.P.Q. 2d 1949, 1950 (Fed. Cir. 1999). In view of the failure of Sato et al to teach a method employing a molar ratio of NaOH/available S in the charging step of 1.015-1.075 as required by claim 5, particularly in

¹ Applicants advise that in the English translation provided by the Examiner, paragraph [0026] in Sato et al is correctly “Also, in case an alkali metal hydrosulfide is used as a sulfur source, the alkali metal hydroxide at about an equal mol is added” and the underlined word was wrongly translated as “hydroxide”.

combination with the remaining steps of claim 5, Sato et al do not anticipate the process of claim 5 or any of the claims dependent thereon. Additionally, again, Sato et al do not provide any basis for asserting the PASs of claims 3 and 4 are inherent in the process of Sato et al.

Further, as noted above, Sato et al conduct a dehydration step after polymerization, prior to recovering the organic amide solvent from the reaction mixture but after completion of the polymerization reaction (see paragraph [0037]), and require either an additional heat treatment step or maintaining high temperature reaction conditions for an extended period of time in order to obtain a higher melt viscosity.

To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill; inherency may not be established by probabilities or possibilities and the mere fact that a certain thing may result from a given set of circumstances is not sufficient, *In re Robertson*, 49 U.S.P.Q. 2d 1949, 1950-51 (Fed. Cir. 1999). Further, the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic, *In re Rijckaert*, 28 U.S.P.Q. 2d 1955, 1957 (Fed. Cir. 1993). In view of the differences in the process of claim 5 and that of Sato et al, including the differences discussed above, the evidence of record does not provide a basis for finding that Sato et al's PAS inherently exhibits the combination of properties recited in claims 3 and 5. To the contrary, Sato et al teach that their process results in a PAS having a lower melt viscosity and there is no reason of record to find that other properties of the Sato et al PAS will not similarly deviate from those recited in claims 3 and 5.

In fact, the Examiner admits that Sato et al do not explicitly teach a PAS having a bis(4-chlorophenyl) sulfide content lower than 50 ppm as determined by a gas chromatographic

analysis, and a ratio (MV2/MV1) of a melt viscosity value (MV2) of the PAS after a reaction with aminosilane to the melt viscosity value (MV1) before the reaction exceeding 2.0 as measured at a temperature of 310 °C and a shear rate of 1216 sec⁻¹. In addition, Sato et al do not disclose the claimed yellow index.

As discussed above, it is an object of the present invention to provide a production process for a PAS which has an extremely low content of bis(4-chlorophenyl) sulfide, is excellent in reactivity to silane coupling agents such as γ -aminopropyltriethoxysilane (i.e., aminosilane), has little or no volatile matter and has good color tone, by using an alkali metal hydrosulfide and an alkali metal hydroxide as a sulfur source to stably conduct a polymerization reaction. When the bis(4-chlorophenyl) sulfide content amounts to at least 50 ppm, the volatile matter content becomes excessive when the PAS is injection-molded, so that the resulting molded product tends to exhibit defects in its appearance and/or impurities attach to the mold to lower workability upon molding and processing. However, in the art of PAS, the importance of an extremely low content of bis(4-chlorophenyl) sulfide has not been known, and Sato et al neither teach nor suggest that the content of bis(4-chlorophenyl) sulfide should be extremely low. Accordingly, Sato et al provide no apparent reason to one of ordinary skill in the art to modify their teachings to arrive at this property.

Additionally, Sato et al neither teach nor suggest their PAS is excellent in reactivity to silane coupling agents. According to the production process of the present invention, the PAS has a ratio (MV2/MV1) of a melt viscosity value (MV2) of the PAS after a reaction with aminosilane to the melt viscosity value (MV1) before the reaction of higher than 2.0, as measured at a temperature of 310°C and a shear rate of 1216 sec⁻¹. A higher ratio as presently claimed indicates a higher reactivity of the PAS to a silane coupling agent. When the reactivity

to aminosilane is high, the viscosity of a molten composition of the PAS and aminosilane increases and the relation of the viscosity to the shear rate is improved so that the occurrence of burrs in melt molding is reduced and the selection latitude for melt processing conditions is widened. On the other hand, if the MV2/MV1 ratio is lower than 2, these improvements are noticeably lessened. When the production process of PAS according to the present invention is used, the MV2/MV1 ratio is also stabilized, thereby avoiding undesirable variations in a composition comprising such a PAS and aminosilane. Again, no teaching, suggestion or recognition of these properties is found in Sato et al, whereby one of ordinary skill in the art has no apparent reason to modify the teachings of Sato et al to arrive at this property.

Further, the PAS obtained by the production process according to the present invention is good in color tone as its yellow index (YI) is generally at most 10. Such a PAS contains little volatile matter and therefore is particularly suitable for use in the field of electronic equipment and the like, in which inhibition of volatile matter is desired.

In order to render a claimed invention obvious under 35 U.S.C. §103, the prior art must enable one skilled in the art to make and use the claimed invention, *Motorola, Inc. v. InterDigital Tech Corp.*, 43 U.S.P.Q. 2d 1481, 1489 (Fed. Cir. 1997). Not only do Sato et al fail to disclose a production process as claimed to provide a basis for asserting that the Sato et al PAS inherently exhibits the properties of claims 3 and 5, Sato et al fail to teach, suggest or recognize the relevance of the properties of claims 3 and 5 in providing an improved PAS. Thus, Sato et al do not enable one of ordinary skill in the art to practice the production process of claim 5 or to make the PAS of claim 3. Sato et al do not therefore render claims 3 and 5, or any of claims 4, 6, 7 and 10-13 dependent thereon, obvious under 35 U.S.C. § 103.

It is therefore submitted that the rejections under 35 U.S.C. §§ 102 and 103 based on Sato et al have been overcome. Reconsideration is respectfully requested.

Claims 3-5 and 7-16 were rejected under 35 U.S.C. 102(b) as being unpatentable over Miyahara et al, US 5,840,830, while claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over Miyahara et al. The Examiner asserted that Miyahara et al teach that sodium sulfide can be produced by in situ reaction of sodium hydrosulfide and sodium hydroxide (column 4, lines 61-64) and that these reactants can be used in equimolar amounts (column 6, lines 49-53). The Examiner further asserted that if such a step is employed, the resulting ratio of NaOH to S is (23.45/22.83) or 1.027, whereby Miyahara et al anticipate the process of claim 5. Finally, the Examiner asserted the PASs of claims 3 and 4 are inherently produced by Miyahara et al.

These rejections are traversed and reconsideration is respectfully requested. The process of claim 5, the PAS defined by claim 3, and the improvements thereof are discussed in detail above. Applicants submit that Miyahara et al do not teach such a process and do not inherently teach PAS as claimed.

Importantly, Miyahara et al, like Sato et al, fail to exemplify any process wherein sodium sulfide is formed *in situ* as required by present claim 5. As noted above, a prior art disclosure of a generic invention encompassing a vast number of embodiments does not by itself anticipate a more specifically claimed invention within the meaning of 35 U.S.C. §102; rather, such a prior art reference must further provide a more specific, limited teaching relating to the claimed invention in order to anticipate the same. *In re Petering, supra*; *In re Ruschig, supra*; *In re Arkley, supra*. Accordingly, in view of the failure of Miyahara et al to exemplify a process combining use of the alkali metal hydrosulfide and the alkali metal hydroxide as the sulfur

source, particularly in combination with steps (2)-(4) as claimed, Miyahara et al do not anticipate the process of claim 5 under 35 U.S.C. §102 and do not provide any basis for asserting that the PASs of claims 3 and 4 are inherent in a process of Miyahara et al.

Further, while the Examiner asserted that applying an *in situ* formation of sodium sulfide in Example 1a disclosed by Miyahara et al results in the claimed invention, Applicants submit that applying an *in situ* sodium sulfide formation in the Miyahara et al process does not result in a process as recited in claim 5, even if the ratio of NaOH to available S is 1.027 as asserted by the Examiner. In this regard, the Examiner's attention is directed to Comparative Example 4 disclosed in the present specification, wherein the ratio of NaOH in the reactor to available S is 1.041 (mol/mol) and therefore within the claimed range of "1.015 to 1.075" in present claim 5. However, in this Comparative Example 4, while the melt viscosity is 130 Pa·s, the bis(4-chlorophenyl) sulfide content is 85 ppm and the ratio (MV2/MV1) is 1.8, both of which are outside the ranges required by claims 3 and 5. Accordingly, Comparative Example 4 demonstrates that the PAS defined in the present claims does not necessarily result merely from the NaOH to available sulfur ratio, but, rather, from a combination of the production process conditions of claim 5. Miyahara et al provide no teaching, suggestion or recognition in this regard, and Comparative Example 4 demonstrates that the PAS of Miyahara et al cannot be assumed to exhibit the claimed PAS properties merely because *in situ* formation of sodium sulfide employs a NaOH to available S ratio of 1.027.

Further, step (1) of claim 5 requires, inter alia, that hydrogen sulfide formed upon the dehydration is discharged as a gas to the exterior of the system. However, in the process of Miyahara et al, hydrogen sulfide is recovered and reused in the polymerization system as a raw material (see claim 1). More importantly, however, the formation of hydrogen sulfide occurs

differently in the process of claim 5 employing alkali metal hydrosulfide as compared to the method exemplified by Miyahara et al employing sodium sulfide, whereby the amount of hydrogen sulfide lost in the dehydration differs and therefore the amount of sulfur remaining for reaction differs, and, in turn, the resulting PAS properties differ. That is, Applicants have discovered that a difference in the amount of hydrogen sulfide which is lost is related to the fact that in the dehydration step according to the present invention, the alkali metal hydroxide reacts with the organic amide solvent by the heat treatment to form an alkali metal alkylaminoalkanoate, and the alkali metal hydrosulfide exists in the system in the form of a complex with the alkali metal alkylaminoalkanoate (see, for example, paragraph [0046] in the present specification).

This difference can be seen from a comparison of Example 3 of the present application and Comparative Example 3a of Miyahara et al which both employ a NaOH/Na₂S ratio of 7.50 mol % and similar charged amounts of NaOH, NMP, pDCB and H₂O. However, the melt viscosity in Comparative Example 3a of Miyahara et al is 216 Pa·s (column 16, lines 63-64), while the melt viscosity in Example 3 of the present specification is 110 Pa·s (paragraph [0095]), both measured under the same temperature and similar shear rate conditions. This difference in melt viscosity is considered to be attributable to the difference in amount of H₂S lost in the respective reactions. In Comparative Example 3a of Miyahara et al, loss of H₂S was 2.25 mol% of the charged amount of Na₂S (column 16, lines 43-44), while in Example 3 of the present specification, the amount of H₂S volatilized out corresponded to 1.69 mol% based on the charged S content (paragraph [0096]), owing to the formation of the aforementioned complex. As a result of the difference in the amount of H₂S lost from dehydration, the amount of sulfur remaining for reaction differs and thus the resulting PAS differs. Thus, the process of claim 5 is

significantly different from that exemplified by Miyahara et al and no teaching, suggestion or recognition is provided by Miyahara et al of this difference, or the consequences thereof in the formed PAS properties. Accordingly, Miyahara et al, fail to disclose each and every limitation of process claims and therefore fail to anticipate claim 5, *In re Robertson, supra*.

Further, in the absence of Miyahara et al teaching a process as presently claimed, there is no basis for the position that a PAS as recited in claim 3 or 4 is inherent in the teachings of Miyahara et al. As noted above, to establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, *In re Robertson, supra*. Miyahara et al do not provide this requisite evidence. Thus, Miyahara et al do not anticipate the PAS of claims 3 and 4, or the PAS provided by claim 5.

Nor do Miyahara et al render such PAS obvious. It is an object of the present invention to provide a production process of a PAS which has extremely low bis(4-chlorophenyl) sulfide impurity, is excellent in reactivity to silane coupling agents such as γ -aminopropyltriethoxysilane (i.e., aminosilane), has low volatile matter, and is good in color tone, by use of an alkali metal hydrosulfide and an alkali metal hydroxide to stably conduct the polymerization reaction. Significantly, in the art of PAS, the present low bis(4-chlorophenyl) sulfide impurity content as required by claims 3 and 4 has not been previously achieved. Importantly, when the bis(4-chlorophenyl) sulfide content in a PAS is 50 ppm or more, the volatile matter content is undesirably excessive when the PAS is injection-molded. As a result, the molded product tends to have defects in its appearance and/or the amount of impurities adhering to the mold increases to markedly lower workability in molding and processing. Miyahara et al provide no apparent reason for one of ordinary skill in the art to achieve such a product and particularly how to achieve the presently claimed low content of bis(4-chlorophenyl) sulfide impurity.

Additionally, Miyahara et al neither teach nor suggest a PAS which is excellent in reactivity to silane coupling agents. On the other hand, according to the present invention as defined by claims 3 and 4, a PAS having a ratio (MV2/MV1) of a melt viscosity value (MV2) of the PAS after a reaction with aminosilane (i.e., γ -aminopropyltriethoxysilane) to the melt viscosity value (MV1) before the reaction of higher than 2.0, as measured at a temperature of 310°C and a shear rate of 1,216 sec⁻¹. A higher ratio indicates a higher reactivity of the PAS to a silane coupling agent, reducing the tendency for burrs to occur in melt molding and widening the latitude of acceptable melt processing conditions. On the other hand, if the MV2/MV1 is lower than 2, such a polymer tends to exhibit more burrs in melt molding and/or a narrower latitude of processing conditions. Additionally, when the production process of PAS according to the present invention is used, the MV2/MV1 ratio is also stabilized. On the other hand, when the MV2/MV1 ratio varies, the melt viscosity of a composition comprising such a PAS and aminosilane tends to vary and such polymers are not preferred. Accordingly, it is desirable to control the ratio within a fixed range, as provided by the present invention. Miyahara et al not only fail to teach the presently claimed process but also fail to provide one of ordinary skill in the art with any apparent reason for modifying the teachings of Miyahara et al to provide a PAS as defined in claims 3 and 4. Accordingly, the PASs of claims 3 and 4 and the PAS produced by the process of claim 5 are nonobvious over and patentably distinguishable from Miyahara et al.

It is therefore submitted that the rejections under 35 U.S.C. §§ 102 and 103 based on Miyahara et al have been overcome. Reconsideration is respectfully requested.

It is believed that the above represents a complete response to the Official Action and places the present application in condition for allowance. Reconsideration and an early allowance are requested.

Please charge any fees required in connection with the present communication, or credit any overpayment, to Deposit Account No. 503915.

Respectfully submitted,

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